

377 AFNWC/JA RESEARCHING VALIDITY OF ALL JULY 2010 PERMIT REFERENCES AND REQUIREMENTS		
QUARTERLY PRE-REMEDY MONITORING AND SITE INVESTIGATION REPORT FOR JANUARY-MARCH 2011		
No.	NMED COMMENT	PROPOSED RESPONSE TO COMMENT
1	There are no graphs showing trends of major contaminant concentrations versus time for groundwater or soil vapor. For groundwater, at a minimum, the major contaminants are EDB, benzene, toluene, xylene (total), naphthalene, 1-methyl naphthalene, 2-methyl naphthalene, DRO, GRO, and lead. For soil-vapor, at a minimum, the major contaminants are EDB, EDC, benzene, toluene, ethylbenzene, xylenes, acetone, GRO, 1,3,5-trimethylbenzene; and 1,2,4-trimethylbenzene. Include such graphs in future quarterly reports.	Starting with the 2011 3 <sup>rd</sup> Quarterly report, these graphs will be included in an appendix when four or more data points are available. The graphs will be prepared for these compounds by individual wells. This task will require generation of approximately 400 individual graphs if all compounds for each well are on a single graph. If individual compound graphs are required, approximately 4000 graphs will be required.
2	There is not a complete and updated table of survey data (horizontal and vertical coordinates) for all groundwater and soil-vapor monitoring wells, and soil borings. Include such a table or tables in future quarterly reports and in MSEXcel <sup>TM</sup> format on a CD or DVD.	A current table of installed locations will be included in the report. An electronic table will be included on the CD for both data locations and well construction details.
3	Geophysical logs are not included in the Quarterly Report, even though Table 3-1 lists the wells where logs were conducted. Include geophysical logs in future quarterly reports.	Geophysical logs will be provided.
4	There is no discussion or interpretation of geophysical data on a well by well basis, multiple well basis, or with respect to the conceptual site model. Include such discussion in future quarterly reports.	Upon completion of all the geophysical logging, this discussion will be added. It is anticipated that all geophysical logging will be completed by the 3 <sup>rd</sup> quarter of 2011 and this discussion will be included in the 2011 3 <sup>rd</sup> Quarterly Report
5	There was no inclusion of the field data acquired during the purging of groundwater monitoring wells. Include such data in future quarterly reports.	Field parameters were included on the bottom of Table 5-1 for all groundwater wells sampled. This will be continued. Interpretation of these data will start once all of the monitor wells are installed and analytical data become available. Purge and sample logs are included in appendix G.
6	There were no data tables presenting historical data for groundwater, soil vapor or soil. Include such tables in future quarterly reports and in MSEXcel <sup>TM</sup> format on a CD or DVD.	The entire historical database will be included on the CD Excel 2007 format until the size of the analytical data exceed the limits of Excel at which time MS Access format will be used. Kirtland AFB and Shaw are currently working together to assemble a complete and accurate database in MSEXcel <sup>TM</sup> format. This database will be included in all reports when completed.
7	The Quarterly Report does not provide adequate information to evaluate the effectiveness of the SVE units. While NMED can discern how much contaminant mass is being removed from the vadose zone during the reporting period and how much mass has been removed cumulatively since initiation of SVE, NMED cannot easily evaluate possible trends or determine if the SVE system is pulling increasing or decreasing amounts of contaminants with time, or monitor if system maintenance or optimization is successful. NMED also cannot determine how much propane is being consumed, or monitor the ratio of propane use versus contaminant extraction. To correct this problem, data tables and graphical representations of the data must be prepared showing by each quarterly period and cumulatively since SVE has commenced for a given area, hours of operation (by engine and by unit), propane used, and mass of contaminants extracted (separate from biodegradation) and treated.	To the extent these data are available for historical operations, trend graphs will be prepared and the data tables show how much propane is consumed per gallon of VOCs recovered. Kirtland AFB and Shaw are currently working together to assemble a complete and accurate database.
8	The Quarterly Report does not describe in detail what optimization was conducted for the SVE system during the reporting period. The Permittee is reminded that maintenance is not optimization. Describe what optimization, if any, occurred.	Activities included operations and maintenance items only. No optimization has been performed.

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9	NMED is concerned that the geophysical and geologic data are not being fully integrated in the cross-sections to produce the best possible geologic model. Furthermore, explain how each of the lithologic units shown on the cross-sections are differentiated from each other, and what major type of depositional environment(s) are represented by each of the units. Use and show on cross-sections data from other KAFB wells and from the Water Utility Authority (WUA) wells wherever possible to provide additional information for preparation of the geologic cross-sections. Because the production wells in the area are deeper than the monitoring wells, these wells may be the only source for geologic information for deeper parts of the aquifer.	Logs from these wells will be requested from appropriate sources. It is anticipated that all geophysical logging will be completed by the 3 <sup>rd</sup> quarter of 2011 and this discussion will be included in the 2011 3 <sup>rd</sup> Quarterly Report. As more wells are completed and more logs are available, the geophysical and geologic data evaluation will be expanded.
10	<p>For groundwater, contaminant concentration maps at shallow, intermediate, and deep depths within the saturated zone need to be prepared (albeit for the Quarterly Report, only data at shallow depths were available at the time the report was generated). For soil and soil vapor, contaminant concentration maps at the various sampling and monitoring depths need to be prepared, as appropriate. Also, the data used to construct the concentration maps need to be posted on the maps.</p> <p>There are no soil contamination maps or cross sections included in the Quarterly Report. Each quarterly report should have these, even if there was no new data added during the reporting period.</p> <p>For soil vapor, the Quarterly Report has concentration maps at various levels, but no cross-sectional views. Also, the map views. Figures 4-1 through 4-4, do not post data values on the maps. Figures 4-1 through 4-4 should have a larger areal extent.</p> <p>Correct each of the aforementioned deficiencies.</p>	<p>The report will include the required information. These maps will be included in future quarterly reports starting with the 2<sup>nd</sup> quarterly report. Contours will only be prepared if these are sufficient detected concentrations to create contours. Otherwise simple point-pattern dot maps will be prepared.</p> <p>Soil concentration maps are included in the 2<sup>nd</sup> quarterly report.</p> <p>An east-west and north-south soil vapor cross sections will be prepared.</p> <p>Three-dimension data interpolation is used for all groundwater, soil, and vapor concentration evaluations to be able to evaluate the data in a 3D context. Concentration values will be posted on vapor and groundwater maps.</p>
11	The area of contamination shown on maps for a given groundwater contaminant must encompass the entire area of contamination, not just the part that exceeds a U. S. Environmental Protection Agency Maximum Contaminant Limit or a New Mexico Water Quality Control Commission standard.	Contour maps will continue to be generated using regulatory concentrations IAW 7 Sep 2011 meeting discussions/direction from NMED. Concentrations are contoured with the lowest concentration contour equal to the respective regulatory concentrations or equivalent concentration. However, all data for a given compound are posted by each well on the concentration maps.
12	To better understand the general hydrochemistry of the groundwater, Piper and stiff diagrams should be prepared for shallow, intermediate, and deep depths within the saturated zone. The stiff diagrams for a given depth should be posted on a map at the sample locations (wells) the diagrams represent.	This will be done starting with the 2011 3 <sup>rd</sup> quarterly report. Because of the number of wells, the Piper and Stiff diagrams will be placed in an appendix. The Stiff maps will be in the main report.
13	The Quarterly Report should have a cross-section(s) showing redox conditions.	This will be done starting with the 2011 3 <sup>rd</sup> quarterly report if the data are available to generate a meaningful cross-section.

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14	Maps and cross-sections depicting saturated hydraulic conductivity at shallow, intermediate, and deep depths within the saturated zone need to be prepared as data become available.	Hydraulic conductivity data will be posted on a map starting with the 3 <sup>rd</sup> quarterly report. It is uncertain if adequate data will be available for meaningful contour mapping. Definition of hydraulic conductivity will likely be more meaningful when the hydraulic conductivity results can be correlated to lithology.
15	The water level maps (Figures 5-2 to 5-5) do not cover a large enough area. The maps should show all wells in the area, including at least the VA Hospital, KAFB and Water Utility Authority (Ridgecrest and Burton Fields) production wells and KAFB groundwater monitoring wells located nearest to the Bulk Fuels Facility.	The water level maps will be expanded to cover larger areas as data are available. Requests will be made to obtain water level data from other wells. Water level contour and data posting maps will be generated from contemporaneous water level for the area across which data are available.
16	Section 2.3.2. middle of last paragraph on Page 2-11. states "The primary variables that impacted recovery amounts for individual months was system downtime due to mechanical issues, air emissions testing issues, and the need to adjust operational settings on the systems due to decreasing well gas fuel concentrations as a result of interference between the systems." It is unclear what is meant by the phrase "the interference between the systems", given in particular that the SVE Units are approximately 400 feet apart. Clarify in future quarterly reports what this phrase means.	The report has been clarified and the statement has been removed. Additional evaluations will be conducted to determine if there is interference between systems.
17	Table 2-3 lists the top of the screened interval as 484 feet for KAFB-1 065, while information submitted on October 5, 2010. as part of the <i>Submission of Critical Data</i> under NMED's letter of August 6, 2010 (page 26, Items 7.i.through ix) indicates that the top of the screened interval is 479 feet. Provide the correct information in future reports.	The correct top of screen depth of 479 feet will be in Table 2-3.
18	In Table 2-3, the water-table depth from the quarter should be listed to ascertain the effective screen length.	This will be added to the table.
19	Hydrographs are supplied in Appendix F. In the future, hydro graphs should have the same vertical and horizontal scale for ease of comparison. Graphs showing water levels versus time for multiple wells in the same geographic area should be prepared and included in each quarterly report so that changes in water-level for a given well can be assessed relative to that of the overall water level change for the group of wells shown on the same plot.	Hydrographs will be generated using the same elevation and date scales starting with 3 <sup>rd</sup> quarterly report. Given the duration of the water level record of over 10 years, recent water level changes will be not readily apparent because of the compressed scales.
20	The Quarterly Report does not provide a summary table listing the detected contaminants and their concentrations for each groundwater and soil-vapor monitoring well. Such a table must be provided in future Quarterly Reports.	The detected compounds and concentrations for groundwater are presented in Table 5-1.
21	Provide electronic copies of the data summary tables in MSExcel™ format, including current and historical field and laboratory analytical data for soil, soil vapor and groundwater.	The entire historical database will be included on the CD Excel 2007 format until the size of the analytical data exceed the limits of Excel at which time MS Access format will be used. Kirtland AFB and Shaw are currently working together to assemble a complete and accurate database in MSExcel™ format. This database will be included in all reports when completed.
22	For the analytical laboratory reports, submitted in electronic format in this Quarterly Report in 6 separate summary data packages, it would be helpful if there was a table to show which package contains the data for which wells.	Cross-reference table will be provided.

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23	Explain why there are some blanks on Table 5-2 for groundwater elevation when depths to water are given.	There are elevation blanks in Table 5-2 because survey elevations are not available for those wells at the time of the report. As survey elevations become available, the groundwater elevations will be calculated and table updated.
24	Table 5-2 has different measuring point elevations than have been used in the past. The table (or another newly prepared table) needs to indicate for each well the elevations of any other measuring points used in the past and time period for which they applied, and if any of the other measuring points were found to be erroneous.	The elevations presented in this report are the result of a comprehensive resurvey of all wells across the site using the same survey methods, surveying contractor, and vertical datum. Historical groundwater levels have all be recalculated for these updated casing elevations and coordinates.
25	Table 5-1 shows "NS" for semi-volatile organic compounds (SVOC) data for many groundwater monitoring wells. All wells must be sampled for SVOCs as required under NMED's letter of August 6, 2010. Failure to collect and analyze sample fractions for SVOCs will delay completion of site characterization.	SVOCs are not identified as a requirement in the NMED June 4, 2010 letter (Reporting, Sampling, and Analysis Requirements for BFF. SVOCs are being collected for newly installed wells at the BFF as a result of the comments on the BFF Groundwater Investigation Work Plan, August 6, 2010 letter from NMED.
26	In Table 5-2 it appears that in all cases the column labeled "FLUID ELEV" is the same as the column "GW ELEV". Explain the difference between the two columns.	A corrected data table will be included in the 2 <sup>nd</sup> quarterly report historical data appendix. The Fluid Elevation in NAPL wells is the top of NAPL elevation and the Groundwater Elevation is the NAPL-water interface elevation.
27	Section 3.2.2.2, Soil-Vapor Monitoring Wells, states: "For screens separated by 100 feet (150,250,350, and 450 bgs)' screens were adjusted by no more than 20 feet.... " Soil-vapor monitoring well KAFB-10632 appears to have its 150 ft level screen set at 175 feet, which is more than 20 feet of adjustment. Correct the text or the screen level, as appropriate.	The text has been corrected to indicate that screens were adjusted by no more than 25 feet.
28	In the list of bullets in Section 1.1 on page 1-3, some of the requirements were not incorporated into the Quarterly Report, including graphs showing trends of major contaminants versus time, geophysical logs, and recommendations for future site activities. (Recommendations for future site activities are not the same as projected activities).	Text will be revised to reflect projected activities for the next quarter.
29	NMED's letter of December 23,2010 directed the Permittee to correct the deficiencies noted in the October 5, 2010 critical data package and submit the required information and revisions to the NMED in the next quarterly report (due at that time in February 2011). NMED notes that this was not accomplished in the February 2011 quarterly report (as directed) nor is it accomplished in this Quarterly Report. Correct the deficiencies.	Many of the deficiencies are corrected in the 2 <sup>nd</sup> quarter report. Kirtland AFB and Shaw are currently working together to assemble a complete and accurate database of all work conducted at the BFF. This database will be included in all reports when completed.

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30	<p>Earlier mistakes are not corrected in the Quarterly Report. For example, in Table 5-2 in the quarterly report for the 4<sup>th</sup> Quarter of 20 10, the GRO and DRO analytical results are reported 3 orders of magnitude higher than they should be due to a mistake in units for groundwater sample results for KAFB-10626 (and other monitoring wells). This was also true for data reported in the quarterly report for the 2<sup>nd</sup> Quarter of 2010.</p> <p>Also, in the quarterly report for the 4<sup>th</sup> Quarter of 2010 the same gamma log was submitted for KAFB-1 0625 and KAFB-1 0626, and, similarly, identical gamma logs were submitted for KAFB-1061 and KAFB-1 063. Clearly in each case, at least one of the logs is incorrect. Correct this data in the next quarterly report.</p>	The entire historical database will be included on the CD Excel 2007 format until the size of the analytical data exceed the limits of Excel at which time MS Access format will be used. Kirtland AFB and Shaw are currently working together to assemble a complete and accurate database of all work conducted at the BFF. This database will be included in all reports when completed
31	<p>Section 1.1 states "It should be noted that only those data collected during each quarter will be presented in the quarterly report." Quarterly reports should be updated each quarter to also show the sum total knowledge (data and interpretation) of soil, soil-vapor and groundwater contamination, a complete table of surveyed locations, and an updated site conceptual model. Certain data tables/graphs may remain the same if no new data was collected or no corrections were necessary. This would allow for a complete update of site characterization as of the date of each quarterly report and a means to correct errors in previous reports.</p>	Text to be revised to include cumulative knowledge collected.